



#3

1

SEQUENCE LISTING

<110> ~~SHREIBER~~ ZINGER, CHRISTINA M.
HASSIG, CHRISTIAN A.
SCHREIBER, STUART L.

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<141> 2001-03-05

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<170> PatentIn Ver. 2.1

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His Glu Gln Leu Ser Arg Gln His Glu Ala Gln Leu His Glu His Ile
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 His Cys Ile Ser Ser Asp Pro Arg Tyr Trp Tyr Gly Lys Thr Gln His
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Gly	Thr	Ser	Pro	Leu	Asn	Arg	Gln	Lys	Leu	Asp	Ser	Lys	Lys	Leu	Leu	755	760	765
Gly	Pro	Ile	Ser	Gln	Lys	Met	Tyr	Ala	Val	Leu	Pro	Cys	Gly	Gly	Ile	770	775	780
Gly	Val	Asp	Ser	Asp	Thr	Val	Trp	Asn	Glu	Met	His	Ser	Ser	Ser	Ala	785	790	795
Val	Arg	Met	Ala	Val	Gly	Cys	Leu	Leu	Glu	Leu	Ala	Phe	Lys	Val	Ala	805	810	815

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 His Ala Glu Glu Ser Thr Ala Met Gly Phe Cys Phe Phe Asn Ser Val
 835 840 845
 Ala Ile Thr Ala Lys Leu Leu Gln Gln Lys Leu Asn Val Gly Lys Val
 850 855 860
 Leu Ile Val Asp Trp Asp Ile His His Gly Asn Gly Thr Gln Gln Ala
 865 870 875 880
 Phe Tyr Asn Asp Pro Ser Val Leu Tyr Ile Ser Leu His Arg Tyr Asp
 885 890 895
 Asn Gly Asn Phe Phe Pro Gly Ser Gly Ala Pro Glu Glu Val Gly Gly
 900 905 910
 Gly Pro Gly Val Gly Tyr Asn Val Asn Val Ala Trp Thr Gly Gly Val
 915 920 925
 Asp Pro Pro Ile Gly Asp Val Glu Tyr Leu Thr Ala Phe Arg Thr Val
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 Ala Gly Phe Asp Ala Val Glu Gly His Leu Ser Pro Leu Gly Gly Tyr
 965 970 975
 Ser Val Thr Ala Arg Cys Phe Gly His Leu Thr Arg Gln Leu Met Thr
 980 985 990
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Arg Asn Ile Lys Lys Gly Ala Val Pro Arg Ser Ile Pro Asn Leu Ala
      35              40              45

Glu Val Lys Lys Lys Gly Lys Met Lys Lys Leu Gly Gln Ala Met Glu
      50              55              60

Glu Asp Leu Ile Val Gly Leu Gln Gly Met Asp Leu Asn Leu Glu Ala
      65              70              75              80

Glu Ala Leu Ala Gly Thr Gly Leu Val Leu Asp Glu Gln Leu Asn Glu
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Phe His Cys Leu Trp Asp Asp Ser Phe Pro Glu Gly Pro Glu Arg Leu
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His Ala Ile Lys Glu Gln Leu Ile Gln Glu Gly Leu Leu Asp Arg Cys
      115             120             125

Val Ser Phe Gln Ala Arg Phe Ala Glu Lys Glu Glu Leu Met Leu Val
      130             135             140

His Ser Leu Glu Tyr Ile Asp Leu Met Glu Thr Thr Gln Tyr Met Asn
      145             150             155             160

Glu Gly Glu Leu Arg Val Leu Ala Asp Thr Tyr Asp Ser Val Tyr Leu
      165             170             175

His Pro Asn Ser Tyr Ser Cys Ala Cys Leu Ala Ser Gly Ser Val Leu
      180             185             190

Arg Leu Val Asp Ala Val Leu Gly Ala Glu Ile Arg Asn Gly Met Ala
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Lys	His	Arg	Ile	Arg	Arg	Val	Leu	Ile	Val	Asp	Trp	Asp	Val	His	His
Gly	Gln	Gly	Thr	Gln	Phe	Thr	Phe	Asp	Gln	Asp	Pro	Ser	Val	Leu	Tyr
Phe	Ser	Ile	His	Arg	Tyr	Glu	Gln	Gly	Arg	Phe	Trp	Pro	His	Leu	Lys
Ala	Ser	Asn	Trp	Ser	Thr	Thr	Gly	Phe	Gly	Gln	Gly	Gln	Gly	Tyr	Thr
Ile 305	Asn	Val	Pro	Trp	Asn	Gln	Val	Gly	Met	Arg	Asp	Ala	Asp	Tyr	Ile
Ala	Ala	Phe	Leu	His	Val	Leu	Leu	Pro	Val	Ala	Leu	Glu	Phe	Gln	Pro
Gln	Leu	Val	Leu	Val	Ala	Ala	Gly	Phe	Asp	Ala	Leu	Gln	Gly	Asp	Pro
Lys	Gly	Glu	Met	Ala	Ala	Thr	Pro	Ala	Gly	Phe	Ala	Gln	Leu	Thr	His
Leu	Leu	Met	Gly	Leu	Ala	Gly	Gly	Lys	Leu	Ile	Leu	Ser	Leu	Glu	Gly
Gly 385	Tyr	Asn	Leu	Arg	Ala	Leu	Ala	Glu	Gly	Val	Ser	Ala	Ser	Leu	His
Thr	Leu	Leu	Gly	Asp	Pro	Cys	Pro	Met	Leu	Glu	Ser	Pro	Gly	Ala	Pro
Cys	Arg	Ser	Ala	Gln	Ala	Ser	Val	Ser	Cys	Ala	Leu	Glu	Ala	Leu	Glu
Pro	Phe	Trp	Glu	Val	Leu	Val	Arg	Ser	Thr	Glu	Thr	Val	Glu	Arg	Asp
Asn 450	Met	Glu	Glu	Asp	Asn	Val	Glu	Glu	Ser	Glu	Glu	Glu	Gly	Pro	Trp
Glu 465	Pro	Pro	Val	Leu	Pro	Ile	Leu	Thr	Trp	Pro	Val	Leu	Gln	Ser	Arg
Thr	Gly	Leu	Val	Tyr	Asp	Gln	Asn	Met	Met	Asn	His	Cys	Asn	Leu	Trp
Asp	Ser	His	His	Pro	Glu	Val	Pro	Gln	Arg	Ile	Leu	Arg	Ile	Met	Cys

Arg Leu Glu Glu Leu Gly Leu Ala Gly Arg Cys Leu Thr Leu Thr Pro
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 Arg Pro Ala Thr Glu Ala Glu Leu Leu Thr Cys His Ser Ala Glu Tyr
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 Val Gly His Leu Arg Ala Thr Glu Lys Met Lys Thr Arg Glu Leu His
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 Arg Glu Ser Ser Asn Phe Asp Ser Ile Tyr Ile Cys Pro Ser Thr Phe
 565 570 575
 Ala Cys Ala Gln Leu Ala Thr Gly Ala Ala Cys Arg Leu Val Glu Ala
 580 585 590
 Val Leu Ser Gly Glu Val Leu Asn Gly Ala Ala Val Val Arg Pro Pro
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 Gly His His Ala Glu Gln Asp Ala Ala Cys Gly Phe Cys Phe Phe Asn
 610 615 620
 Ser Val Ala Val Ala Ala Arg His Ala Gln Thr Ile Ser Gly His Ala
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 645 650 655
 Gln His Met Phe Glu Asp Asp Pro Ser Val Leu Tyr Val Ser Leu His
 660 665 670
 Arg Tyr Asp His Gly Thr Phe Phe Pro Met Gly Asp Glu Gly Ala Ser
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 Ser Gln Ile Gly Arg Ala Ala Gly Thr Gly Phe Thr Val Asn Val Ala
 690 695 700
 Trp Asn Gly Pro Arg Met Gly Asp Ala Asp Tyr Leu Ala Ala Trp His
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 785 790 795 800
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 Asn Ser Glu Thr Ala Val Val Ala Leu Thr Gln Asp Gln Pro Ser Glu
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Pro Ile Pro Ala Ala Gly Leu Asp Val Thr Gln Pro Cys Gly Asp Cys
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<211> 912

<212> PRT

<213> Homo sapiens

<400> 12

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 20 25 30

Phe Leu Ala Gly Leu Gln Gln Gln Arg Ser Val Glu Pro Met Arg Leu
 35 40 45

Ser Met Asp Thr Pro Met Pro Glu Leu Gln Val Gly Pro Gln Glu Gln
 50 55 60

Glu Leu Arg Gln Leu Leu His Lys Asp Lys Ser Lys Arg Ser Ala Val
 65 70 75 80

Ala Ser Ser Val Val Lys Gln Lys Leu Ala Glu Val Ile Leu Lys Lys
 85 90 95

Gln Gln Ala Ala Leu Glu Arg Thr Val His Pro Asn Ser Pro Gly Ile
 100 105 110

Pro Tyr Arg Thr Leu Glu Pro Leu Glu Thr Glu Gly Ala Thr Arg Ser
 115 120 125

Met Leu Ser Ser Phe Leu Pro Pro Val Pro Ser Leu Pro Ser Asp Pro
 130 135 140

Pro Glu His Phe Pro Leu Arg Lys Thr Val Ser Glu Pro Asn Leu Lys
 145 150 155 160
 Leu Arg Tyr Lys Pro Lys Lys Ser Leu Glu Arg Arg Lys Asn Pro Leu
 165 170 175
 Leu Arg Lys Glu Ser Ala Pro Pro Ser Leu Arg Arg Arg Pro Ala Glu
 180 185 190
 Thr Leu Gly Asp Ser Ser Pro Ser Ser Ser Thr Pro Ala Ser Gly
 195 200 205
 Cys Ser Ser Pro Asn Asp Ser Glu His Gly Pro Asn Pro Ile Leu Gly
 210 215 220
 Asp Ser Asp Arg Arg Thr His Pro Thr Leu Gly Pro Arg Gly Pro Ile
 225 230 235 240
 Leu Gly Ser Pro His Thr Pro Leu Phe Leu Pro His Gly Leu Glu Pro
 245 250 255
 Glu Ala Gly Gly Thr Leu Pro Ser Arg Leu Gln Pro Ile Leu Leu Leu
 260 265 270
 Asp Pro Ser Gly Ser His Ala Pro Leu Leu Thr Val Pro Gly Leu Gly
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 Pro Leu Pro Phe His Phe Ala Gln Ser Leu Met Thr Thr Glu Arg Leu
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 Ser Gly Ser Gly Leu His Trp Pro Leu Ser Arg Thr Arg Ser Glu Pro
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 Arg Leu Glu Gln Leu Lys Thr His Val Gln Val Ile Lys Arg Ser Ala
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 Lys Pro Ser Glu Lys Pro Arg Leu Arg Gln Ile Pro Ser Ala Glu Asp
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 435 440 445

Ala Ala Pro Ala Ser Leu Ser Ala Pro Glu Pro Ala Ser Gln Ala Arg
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 465 470 475 480
 Gly Leu Ile Tyr Asp Ser Val Met Leu Lys His Gln Cys Ser Cys Gly
 485 490 495
 Asp Asn Ser Arg His Pro Glu His Ala Gly Arg Ile Gln Ser Ile Trp
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 His Val Leu Leu Tyr Gly Thr Asn Pro Leu Ser Arg Leu Lys Leu Asp
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 Asn Gly Lys Leu Ala Gly Leu Leu Ala Gln Arg Met Phe Val Met Leu
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 Pro Cys Gly Gly Val Gly Val Asp Thr Asp Thr Ile Trp Asn Glu Leu
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 His Ser Ser Asn Ala Ala Arg Trp Ala Ala Gly Ser Val Thr Asp Leu
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 610 615 620
 Arg Pro Pro Gly His His Ala Asp His Ser Thr Ala Met Gly Phe Cys
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 Phe Phe Asn Ser Val Ala Ile Ala Cys Arg Gln Leu Gln Gln Gln Ser
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 Lys Ala Ser Lys Ile Leu Ile Val Asp Trp Asp Val His His Gly Asn
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 Gly Thr Gln Gln Thr Phe Tyr Gln Asp Pro Ser Val Leu Tyr Ile Ser
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 740 745 750

Leu Val Leu Val Ser Ala Gly Phe Asp Ala Ala Glu Gly His Pro Ala
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 Pro Leu Gly Gly Tyr His Val Ser Ala Lys Cys Phe Gly Tyr Met Thr
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 Arg Val His Ser Lys Tyr Trp Gly Cys Met Gln Arg Leu Ala Ser Cys
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 Pro Asp Ser Trp Val Pro Arg Val Pro Gly Ala Asp Lys Glu Glu Val
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 <212> DNA
 <213> Homo sapiens

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<210> 14

<211> 590

<212> PRT

<213> Homo sapiens

<400> 14

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			20					25					30		
Met	Met	Pro	Val	Val	Asp	Pro	Val	Val	Arg	Glu	Lys	Gln	Leu	Gln	Gln
		35					40					45			
Glu	Leu	Leu	Leu	Ile	Gln	Gln	Gln	Gln	Gln	Ile	Gln	Lys	Gln	Leu	Leu
	50					55					60				
Ile	Ala	Glu	Phe	Gln	Lys	Gln	His	Glu	Asn	Leu	Thr	Arg	Gln	His	Gln
65					70					75					80
Ala	Gln	Leu	Gln	Glu	His	Ile	Lys	Glu	Leu	Leu	Ala	Ile	Lys	Gln	Gln
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Gln	Glu	Leu	Leu	Glu	Lys	Glu	Gln	Lys	Leu	Glu	Gln	Gln	Arg	Gln	Glu
			100					105					110		
Gln	Glu	Val	Glu	Arg	His	Arg	Arg	Glu	Gln	Gln	Leu	Pro	Pro	Leu	Arg
		115					120					125			
Gly	Lys	Asp	Arg	Gly	Arg	Glu	Arg	Ala	Val	Ala	Ser	Thr	Glu	Val	Lys
	130					135					140				
Gln	Lys	Leu	Gln	Glu	Phe	Leu	Leu	Ser	Lys	Ser	Ala	Thr	Lys	Asp	Thr
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Pro	Thr	Asn	Gly	Lys	Asn	His	Ser	Val	Ser	Arg	His	Pro	Lys	Leu	Trp
				165					170					175	
Tyr	Thr	Ala	Ala	His	His	Thr	Ser	Leu	Asp	Gln	Ser	Ser	Pro	Pro	Leu
			180					185					190		
Ser	Gly	Thr	Ser	Pro	Ser	Tyr	Lys	Tyr	Thr	Leu	Pro	Gly	Ala	Gln	Asp
		195					200					205			
Ala	Lys	Asp	Asp	Phe	Pro	Leu	Arg	Lys	Thr	Ala	Ser	Glu	Pro	Asn	Leu
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Lys	Val	Arg	Ser	Arg	Leu	Lys	Gln	Lys	Val	Ala	Glu	Arg	Arg	Ser	Ser
225					230					235					240
Pro	Leu	Leu	Arg	Arg	Lys	Asp	Gly	Asn	Val	Val	Thr	Ser	Phe	Lys	Lys
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Arg	Met	Phe	Glu	Val	Thr	Glu	Ser	Ser	Val	Ser	Ser	Ser	Ser	Pro	Gly
			260					265					270		
Ser	Gly	Pro	Ser	Ser	Pro	Asn	Asn	Gly	Pro	Thr	Gly	Ser	Val	Thr	Glu
		275					280					285			
Asn	Glu	Thr	Ser	Val	Leu	Pro	Pro	Thr	Pro	His	Ala	Glu	Gln	Met	Val
	290					295					300				

Ser Gln Gln Arg Ile Leu Ile His Glu Asp Ser Met Asn Leu Leu Ser
 305 310 315 320
 Leu Tyr Thr Ser Pro Ser Leu Pro Asn Ile Thr Leu Gly Leu Pro Ala
 325 330 335
 Val Pro Ser Gln Leu Asn Ala Ser Asn Ser Leu Lys Glu Lys Gln Lys
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 355 360 365
 Gly Gly Ser Ile Pro Ala Ser Ser Ser His Pro His Val Thr Leu Glu
 370 375 380
 Gly Lys Pro Pro Asn Ser Ser His Gln Ala Leu Leu Gln His Leu Leu
 385 390 395 400
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 465 470 475 480
 Gln Ile His Met Asn Lys Leu Leu Ser Lys Ser Ile Glu Gln Leu Lys
 485 490 495
 Gln Pro Gly Ser His Leu Glu Glu Ala Glu Glu Glu Leu Gln Gly Asp
 500 505 510
 Gln Ala Met Gln Glu Asp Arg Ala Pro Ser Ser Gly Asn Ser Thr Arg
 515 520 525
 Ser Asp Ser Ser Ala Cys Val Asp Asp Thr Leu Gly Gln Val Gly Ala
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 Val Lys Val Lys Glu Glu Pro Val Asp Ser Asp Glu Asp Ala Gln Ile
 545 550 555 560
 Gln Glu Met Glu Ser Gly Glu Gln Ala Ala Phe Met Gln Gln Val Ile
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 Gly Lys Asp Leu Ala Pro Gly Phe Val Ile Lys Val Ile Ile
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<210> 15

<211> 69

<212> PRT

<213> Homo sapiens

<400> 15

His His Ala Lys Lys Ser Glu Ala Ser Gly Phe Cys Tyr Val Asn Asp
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Ile Val Leu Ala Ile Leu Glu Leu Leu Lys Tyr His Gln Arg Val Leu
20 25 30

Tyr Ile Asp Ile Asp Ile His His Gly Asp Gly Val Glu Glu Ala Phe
35 40 45

Tyr Thr Thr Asp Arg Val Met Thr Val Ser Phe His Lys Tyr Gly Glu
50 55 60

Tyr Phe Pro Gly Thr
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<210> 16

<211> 75

<212> PRT

<213> Saccharomyces sp.

<400> 16

His His Ala Glu Pro Gln Ala Ala Gly Gly Phe Cys Leu Phe Ser Asn
1 5 10 15

Val Ala Val Ala Ala Lys Asn Ile Leu Lys Asn Tyr Pro Glu Ser Val
20 25 30

Arg Arg Ile Met Ile Leu Asp Trp Asp Ile His His Gly Asn Gly Thr
35 40 45

Gln Lys Ser Phe Tyr Gln Asp Asp Gln Val Leu Tyr Val Ser Leu His
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Arg Phe Glu Met Gly Lys Tyr Tyr Pro Gly Thr
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<210> 17

<211> 9

<212> PRT

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<222> (2)..(3)

<223> Any amino acid

<220>

<221> MOD_RES

<222> (6)

<223> Any amino acid

<400> 17

Asn Xaa Xaa Gly Gly Xaa His His Ala
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<210> 18

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Consensus
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1 5

<210> 19

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Consensus
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<220>

<221> MOD_RES

<222> (3)

<223> Phe or Tyr

<220>

<221> MOD_RES

<222> (5)..(6)

<223> Any amino acid

<400> 19

Ser Gly Xaa Cys Xaa Xaa Asn
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<210> 20

<211> 11

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Consensus
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<222> (2)
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<220>
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 1 5 10

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<400> 22
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 <221> MOD_RES
 <222> (2)
 <223> Hydrophobic amino acid

<400> 25
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<210> 26
 <211> 6
 <212> PRT
 <213> Homo sapiens

<400> 26
 Gly Gly Tyr Glu Asn Pro
 1 5

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<400> 27
 Gly Glu Asp Cys Pro
 1 5

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<400> 28
Gly Glu Asp Cys Pro
1 5

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<400> 29
Gly Asp Asp Cys Pro
1 5

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<400> 30
Gly Tyr Asp Cys Pro
1 5

<210> 31
<211> 6
<212> PRT
<213> Homo sapiens

<400> 31
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